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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,937	07/03/2003	Takashi Hashimoto	2003_0881A	3943

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WENDEROTH, LIND & PONACK, L.L.P.
2033 K STREET N. W.
SUITE 800
WASHINGTON, DC 20006-1021

EXAMINER	
ZALEPA, GEORGE D	

ART UNIT	PAPER NUMBER
2183	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/611,937	HASHIMOTO ET AL.	
	Examiner	Art Unit	
	George D. Zalepa	2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☑ All b)☐ Some * c)☐ None of:

1.☑ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4/26/06, 10/02/03
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-15 have been considered by the examiner.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Data processing system containing multiple dedicated processing units connected via data transfer units to a program controlled central processor.

Claim Objections

3. Claim 7 is objected to because of the following informalities: Claim 7 repeats the limitation "wherein said second data transfer unit is operable to connect said plurality of second data processing units" which is present in independent claim 1 from which claim 7 depends. Appropriate correction is required.

4. Claim 8 recites the limitation "said second data processing unit" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. Furthermore, claim 1 refers to a "plurality of second data processing units" and their connection to the first processing unit, not a sole second processing unit. It is not clear to what processing unit, or plurality of processing units this claim is directed to. For examination, the examiner will assume the third transfer unit connects the first processing unit to the *plurality* of second processing units. Claims 11 and 13 are objected due to its dependency on rejected claim 8. Appropriate correction is required.

5. Claim 9 is objected to because of the following informalities: The examiner fails to see where a fourth data processing unit is utilized to connect its own calculation unit with a second data transfer unit. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 13 recites the limitation "said third data transfer unit" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sihlbom et al. (US Pat. No. 6,653,859; herein referred to as "Sihlbom") in view of Zak et al. (US Pat. No. 5,265,207; herein referred to as "Zak").

11. Regarding **independent claim 1**,

12. Sihlbom discloses *a data processing system, comprising: a first data processing unit operable to perform data processing under program control* [see Sihlbom, Fig. 9, element 32; Fig. 4, element 32; Col. 4, lines 8-10; Examiner's note: Fig. 4, element 32 is a detailed view of DSP 32 in Fig. 9.]; *a plurality of second data processing units* [see Sihlbom, Fig. 9, elements 141-144], *each of said second data processing units being operable to perform data processing under wired logic control* [see Sihlbom, Col. 1, lines 62-65; Col. 2, lines 45-51]; *a storage unit operable to*

store data [see Sihlbom, Fig. 4, elements 82, 84]; *a first data transfer unit operable to connect said first data processing unit and said plurality of second data processing units, via said storage unit* [see Sihlbom, Fig. 9, elements 44/46; Examiner's note: In conjunction with Fig. 4, it is shown by Sihlbom connects to secondary processing units through elements 82 and 84 (Fig. 4), through memory control (element 34) and to secondary processing units.].

13. Sihlbom does not disclose *a second data transfer unit operable to connect said plurality of second data processing units.*

14. Zak does disclose *a second data transfer unit operable to connect said plurality of second data processing units* [see Zak, Fig. 2a, element 20(2,0) (considered for examination to be the root (transfer unit)); Col. 6, lines 25-27].

15. The advantage of utilizing the second data transfer as disclosed by Zak would have been to allow for a more flexible computing apparatus than provided by Sihlbom. Sihlbom provides a processing environment suited for signal processing algorithms, as shown by the use of a DSP and the reference to decoding video signals (see Sihlbom, Col. 4, lines 6-8). It would have been know that a more sophisticated data router, such as that disclosed by Zak would have increased the performance of algorithms due to its ability to quickly transfer data amongst processing elements (see Zak, Col. 3, lines 11-14, 43-46). This advantage is desirable in the environment disclosed by Sihlbom as it would allow processing elements to communicate with other processing elements directly, without the need for a main processor's interference, thus increasing the speed of the overall processor. This advantage would have motivated one of ordinary skill in the art at the time of invention to use the data router disclosed by Zak in place of the simpler multiplexer scheme disclosed by Sihlbom (Fig. 9, elements 138,140) with the goal of increasing processor performance by allowing independent data transfers among processing elements. Therefore, it would have been obvious to one of ordinary skill in the art at the time of

invention to utilize the data router in combination with the processing environment disclosed by Sihlbom.

16. Regarding **claim 2**,

17. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

18. Zak further discloses *said second data transfer unit...operable to perform a bilateral data transfer between one of said plurality of second data processing units and another of said plurality of second data processing units* [see Zak, Col. 6, lines 25-27; Fig. 2a, element 21(1,0); Examiner's note: It is clear that Zak allows for a bilateral data transfer, as the Col. 6 cite specifies the capability of the data router to communicate between processing elements and Fig. 2a shows the bidirectional capabilities of said router.].

19. Regarding **claim 3**,

20. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

21. Zak further discloses *said second data transfer unit...operable to perform a unilateral data transfer between one of said plurality of second data processing units and another of said plurality of second data processing units* [see Zak, Col. 6, lines 25-27; Fig. 2a, element 20(1,0); Examiner's note: Zak does not limit the capabilities of the data router disclosed, therefore, it is clear that a unilateral transfer is realized by the disclosed router.].

22. Regarding **claim 4**,

23. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

24. Zak further discloses *said second data transfer unit...operable to connect one of said plurality of second data processing units and another of said plurality of second data processing units in one-to-one correspondence* [see Zak, Col. 6, lines 25-27; lines 31-33; Examiner's note: Zak discloses processing elements transmitting data to each other via the data router, thus a one-to-one correspondence.].

25. Regarding **claim 5**,

26. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

27. Zak further discloses *said second data transfer unit...operable to connect one of said plurality of second data processing units and some of the other of said plurality of second data processing units in one-to-many correspondence* [see Zak, Col. 11, lines 24-27; Examiner's note: Zak discloses the use of an "all-fall-down" mode which routes messages from one point to multiple points, thus a one-to-many correspondence.].

28. Regarding **claim 6**,

29. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

30. Zak further discloses *said second data transfer unit...operable to connect said plurality of second data processing units* [see Zak, Col. 6, lines 25-27; Fig. 2a, connections between element 21(2,0) and children.].

31. Regarding **claim 7**,

32. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

33. Zak also discloses *said second data transfer unit...operable to connect said plurality of second data processing units* [see Zak, Col. 6, lines 25-27] *and to perform a unilateral data transfer from a prescribed unit of said plurality of second data processing units to a plurality of other units of said plurality of second data processing units* [see Zak, Col. 6, lines 25-27; Fig. 2a, element 20(1,0); Examiner's note: Zak does not limit the capabilities of the data router disclosed, therefore, it is clear that a unilateral transfer is realized by the disclosed router.].

34. Regarding **claim 8**,

35. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

36. Zak further discloses *a third data transfer unit operable to connect said first data processing unit and said second data processing unit* [see Zak, Fig. 2a, elements 20(1,0)-21(1,2); Col. 6, lines 25-27; Examiner's note: The children element of the data router are operate to connect the first processing element (DSP in Sihlbom) with the second processing elements (PLCs

in Sihlbom, "processing elements" in Zak) as data is transmitted through the children before reaching the processing elements.].

37. Regarding **claim 9**,

38. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

39. Sihlbom further discloses *said plurality of second data processing units* [comprising] *a calculating unit* [see Sihlbom, Col. 5, lines 45-53; Examiner's note: It is clear that the architecture disclosed by Sihlbom would require a calculating of some caliber to be in place in the PLC.].

40. Zak further discloses, *and a fourth data transfer unit operable to connect said calculating unit and said second data transfer unit* [see Zak, Fig. 2, elements 20(1,0), 20(1,1) et al.; Examiner's note: Zak discloses a multilevel routing scheme, with node 20(M,0) being the top node (second transfer unit), therefore, Zak discloses at least one more transfer unit corresponding to one of the child nodes.].

41. Regarding **claim 10**,

42. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

43. Zak further discloses *said first data processing unit...operable to control data transfer via said second data transfer unit* [see Zak, Col. 6, lines 25-27; Examiner's note: It is clear from Fig. 2a, that node (2,0) would be utilized by a first processing unit to control the secondary processing elements and thus data transfer.].

44. Regarding **claim 11**,

45. Sihlbom and Zak disclose the limitations as stated in **claim 8**.

46. Zak further discloses *said first data processing unit...operable to control data transfer via said third data transfer unit* [see Zak, Fig. 2a, elements 20(1,0)-(1,2); Col. 7, lines 24-26; Examiner's note: It is clear from the tree structure that Zak discloses a first data unit utilizing a child node to route data to the appropriate leaf (second data processing element).].

47. Regarding **claim 12**,

48. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

49. Sihlbom further discloses *a first data transfer control unit operable to control data transfer via said second data transfer unit* [see Sihlbom, Fig. 9, connections between element 44 and elements 46, 138, 140; Examiner's note: As described in the rejection of claim 1, by replacing the transfer structure of Sihlbom with the improved transfer structure of Zak, inherently, the first transfer unit (44) would control the operation of the second transfer unit.].

50. Regarding **claim 13**,

51. Sihlbom and Zak disclose the limitations as stated in **claim 8**.

52. Zak further discloses *a second data transfer control unit operable to control data transfer via said third data transfer unit* [see Zak, Col. 7, lines 55-62; Fig. 2a, connection between node 20(2,0) (second data transfer units) and child nodes (third data transfer units).].

53. Regarding **claim 14**,

54. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

55. Sihlbom does not explicitly disclose *said second data processing unit is operable to perform processing of encoding.*

56. However, Sihlbom discloses using the second data processing unit to decode signals (Col. 4, lines 6-8). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to enable the second processing unit to encode signals as well given the environment disclosed by Sihlbom.

57. Regarding **claim 15**,

58. Sihlbom and Zak disclose the limitations as stated in **independent claim 1**.

59. Sihlbom further discloses *said second data processing unit...operable to perform processing of decoding* [see Sihlbom, Col. 4, lines 6-8].

Conclusion

60. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. US Pat. 5014189 to Tamitani discloses a processor array containing a switching fabric utilized to route data.

b. US Pat. 5729756 to Hayashi discloses a reconfigurable system containing multiple parallel execution units connected to a main processor by switches.

c. US Pat. 6298409 to Sheikh discloses a central processor with bridges to parallel processing units.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George D. Zalepa whose telephone number is (571) 272-6754. The examiner can normally be reached on Monday-Friday (alt. Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie P. Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

George Zalepa
Examiner
Art Unit 2183
Randolph 2E74
Phone: (571)272-6754

EDDIE CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100